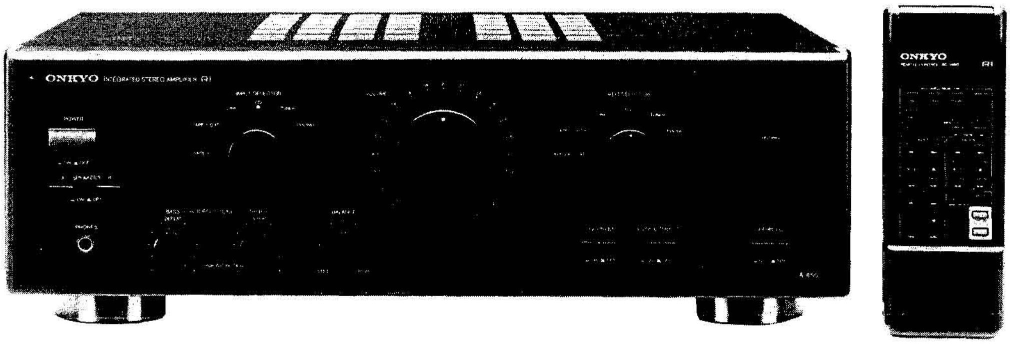
Ref. No. 3463

ONKYO® SERVICE MANUAL

Integrated Stereo Amplifier
MODEL A-850



UP	230V AC, 50Hz
UW	120V/220V AC, 50Hz/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF PARTS.
WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

Power Output :	60 watts per channel, min. RMS,at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.06% THD.	
	2×100 watts at 4 ohms. 1 kHz (DIN)	
	2×70 watts at 8 ohms. 1 kHz (DIN)	
Total Harmonic Distortion :	0.06% at rated power	
Intermodulation Distortion :	0.06% at rated power	
Damping Factor :	150 at 8 ohms (1 kHz)	
Input Sensitivity /Impedance:	Phono (MM):	2.5 mV / 50 kohms
	Phono (MC):	350μV / 220 ohms
	CD/Tuner/Line:	150 mV / 25 kohms
	Tape Play:	150 mV / 25 kohms
Output Sensitivity / Impedance :	Tape Rec:	150 mV / 3 kohms (Phono)
Phono Overload :	Phono (MM) :	135 mV RMS. at 1 kHz, 0.1% THD.
Tone Control :	BASS:	±8 dB at 100 Hz
	TREBLE:	±8 dB at 10 kHz
	Loudness Control:	+ 8 dB at 100 Hz + 8 dB at 10 kHz
Frequency Response :	CD, Tuner :	15 Hz ~ 50 kHz ±1dB
Signal to Noise Ratio (IHF-A) :	Phono (MM):	84 dB (5.0 mV input)
	Phono (MC):	74 dB (0.5 mV input)
	CD (DIRECT):	104 dB (0.5V input)
Power Supply :	European models:	AC 230V, 50 Hz
	U.K & Australian models:	AC240V, 50 Hz
	Worldwide models:	AC 120 and 220V switchable, 50/60 Hz
Dimensions (W×H×D) :	455×150×348 mm 17-15/16"×5-7/8"×13-11/16"	
Weight :	8.3 kg, (18.3 lbs.)	

Specifications and features are subject to change without notice

ADJUSTMENT PROCEDURES

Adjustments and Checking the Protection Circuitry

1. Preparations

1) Place the unit on the workbench. (There should be about 15 mm of space between the base plate of the unit and the work surface.)
2) Set up the unit as follows.
   (1) No load
   (2) No signal
   (3) Volume turned all the way down
   (4) Speaker switch OFF
   (5) Power switch OFF

Note) Check the following points before making adjustments
   (1) The power switch should be OFF.
   (2) The interior of the unit should not be warm.

2. Idling current adjustment

1) Turn the power switch ON and allow the unit to warm up for about 10 minutes.
   (1) Ajust R531 (R532) so that the voltage at test point VCT-ID on the NAAF-4838 circuit board is 9.5mV±3.5mV

NOTE) Semi-fixed resistors enclosed in parentheses ( ) are for the right channel.

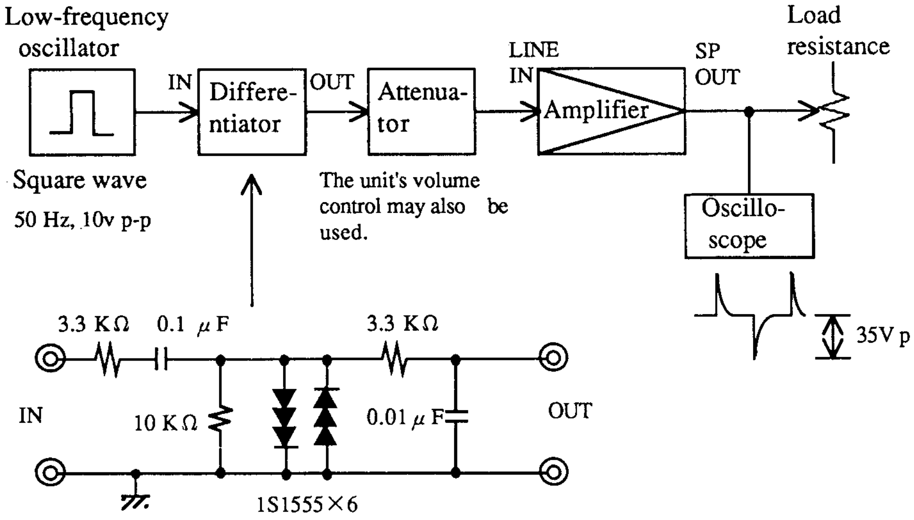
3. Check of operation of protection circuitry

1) Check of operation of protection relay.
   (1) Confirm that the relay turns ON approximately 5 seconds after the power switch is turned ON.
   (2) The relay should turn OFF approximately 0.5 seconds after the power switch is turned OFF.
2) Check of DC detection
   (1) Turn the power on with no load.
   (2) After the speaker relay turns ON, apply DC +1 ~ 1.5V to the CD input terminals. Confirm that the relay turns OFF.
   (3) Confirm that operation is the same as (2) above when an input of DC −1 ~ −1.5V is applied.

Note) Under no circumstances connect a load or short the speaker terminals when performing the above test.

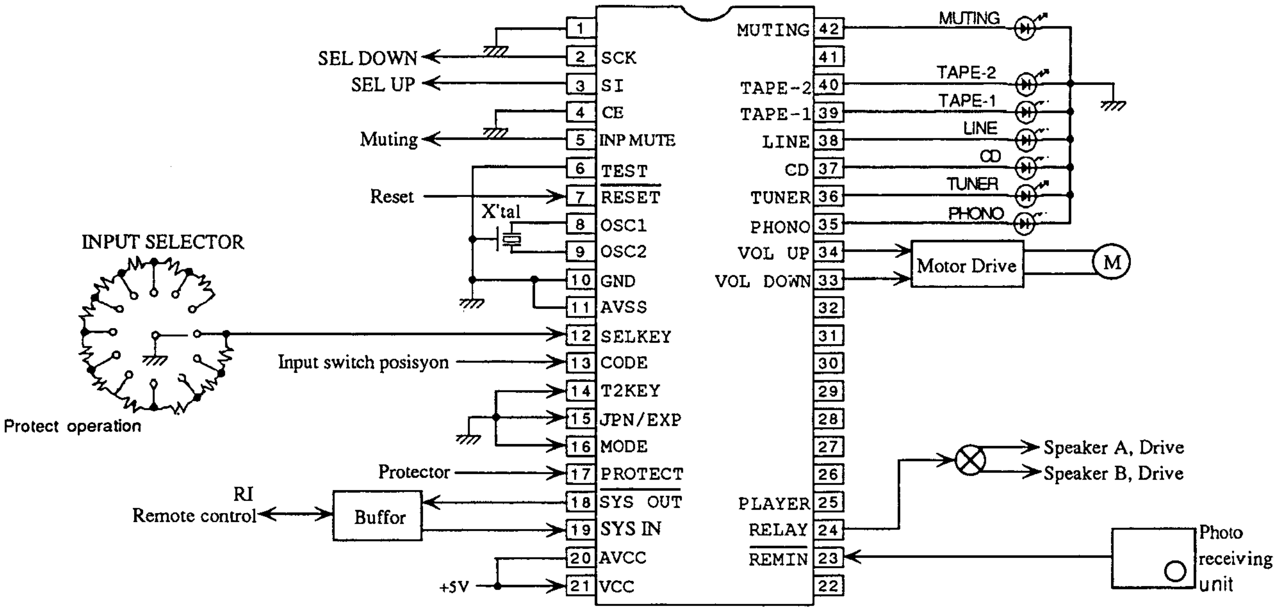
3) Confirmation of current detection operation
   (1) Signal input from the circuit illustrated below with no load.
   (2) Confirm that the speaker relay does not turn OFF even when a 2 ohm load is connected when a peak value of 35Vp is output.
   (3) Next, confirm that when a 1 ohm load is connected the speaker relay switches OFF and ON a couple of times and then stays OFF.

Note) The period before that relay stays OFF should not last for more than 10 second.
Relay OFF status can be canceled by switching the power OFF.


Low-frequency oscillator
Square wave
50 Hz, 10v p-p
IN
Differe-ntiator
OUT
Attenua-tor
The unit's volume control may also be used.
LINE IN
Amplifier
SP OUT
Load resistance
Oscillo-scope
35Vp
3.3 KΩ
0.1 μF
3.3 KΩ
IN
10 KΩ
0.01 μF
OUT
1S1555×6

IC BLOCK DIAGRAM

HD404314A12S

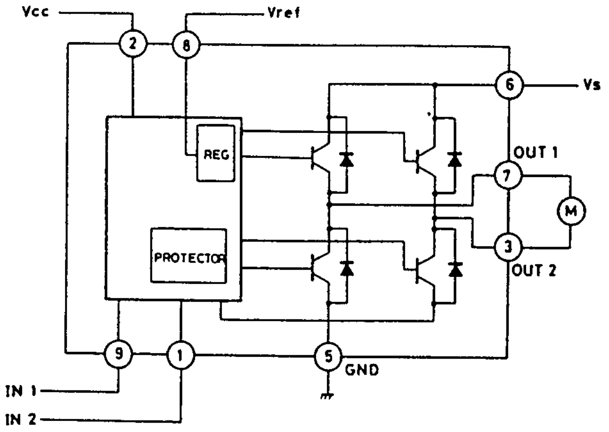

1
2 SCK
3 SI
4 CE
5 INP MUTE
6 TEST
7 RESET
8 OSC1
9 OSC2
10 GND
11 AVSS
12 SELKEY
13 CODE
14 T2KEY
15 JPN/EXP
16 MODE
17 PROTECT
18 SYS OUT
19 SYS IN
20 AVCC
21 VCC
MUTING 42
41
TAPE-2 40
TAPE-1 39
LINE 38
CD 37
TUNER 36
PHONO 35
VOL UP 34
VOL DOWN 33
32
31
30
29
28
27
26
PLAYER 25
RELAY 24
REMIN 23
22
SEL DOWN
SEL UP
Muting
Reset
X'tal
INPUT SELECTOR
Input switch posisyon
Protect operation
Protector
RI
Remote control
Buffor
+5V
MUTING
TAPE-2
TAPE-1
LINE
CD
TUNER
PHONO
Motor Drive
M
Speaker A, Drive
Speaker B, Drive
Photo
receiving
unit

HD404314

<table>
<tr><th>Pin No.</th><th>CODE</th><th>FUNCTION</th><th>I / O</th><th>DESCRIPTION</th></tr>
<tr><td>1</td><td>RA1/Vdisp</td><td>------</td><td>-----</td><td>Not used, To be connected with GND.</td></tr>
<tr><td>2</td><td>R00/SCK</td><td>SEL DOWN / CL</td><td rowspan="2">OUT</td><td rowspan="4">UP/DOWN Output terminal for Input selector.<table><tr><th>OPERATION</th><th>SEL UP</th><th>SEL DOWN</th></tr><tr><td>STOP</td><td>H</td><td>H</td></tr><tr><td>UP</td><td>H</td><td>L</td></tr><tr><td>DOWN</td><td>L</td><td>H</td></tr></table></td></tr>
<tr><td>3</td><td>R01/SI</td><td>SEL UP / D1</td></tr>
<tr><td>4</td><td>R02/SO</td><td>CE</td><td>-----</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>R03/TOC</td><td>INP MUT</td><td>OUT</td><td>Muting output terminal. Active "H".</td></tr>
<tr><td>6</td><td>TEST</td><td>TEST</td><td>-----</td><td>Shipment Test. To be connected with GND.</td></tr>
<tr><td>7</td><td>RESET</td><td>RESET</td><td>IN</td><td>Input terminal for Reset signal. Active "L"</td></tr>
<tr><td>8</td><td>OSC1</td><td>Xtal</td><td>-----</td><td rowspan="2">Terminal for connecting with Ceramic oscillator (4MHz)</td></tr>
<tr><td>9</td><td>OSC2</td><td>Xtal</td><td>-----</td></tr>
<tr><td>10</td><td>GND</td><td>GND</td><td>-----</td><td>Ground terminal</td></tr>
<tr><td>11</td><td>AVss</td><td>AVss</td><td>-----</td><td>Ground terminal of A/D converter</td></tr>
<tr><td>12</td><td>R30/AN0</td><td>SELKEY</td><td>IN</td><td>Input terminal for when changing over Input Selector.
Through A/D conversion, the selector will be detector on its right or left rotation.</td></tr>
<tr><td>13</td><td>R31/AN1</td><td>CODE</td><td>IN</td><td>Code input terminal for detecting position of Rotary switch of Motor drive.</td></tr>
<tr><td>14</td><td>R32/AN2</td><td>T-2KEY</td><td>IN</td><td>Tape-2 Key entry terminal.</td></tr>
<tr><td>15</td><td>R33/AN3</td><td>JPN/EXP</td><td>IN</td><td>Input terminal for change-over between Japan model and Export model.</td></tr>
</table>

<table>
<tr><th>Pin No.</th><th>CODE</th><th>FUNCTION</th><th>I / O</th><th>DESCRIPTION</th></tr>
<tr><td>16</td><td>R40/AN4</td><td>MODE</td><td>IN</td><td>Input terminal for initialization to change over operation mode.</td></tr>
<tr><td>17</td><td>R41/AN5</td><td>PROTECT</td><td>IN</td><td>Input terminal for detecting protect operation.</td></tr>
<tr><td>18</td><td>R42/AN6</td><td>$\overline{\text{SYS OUT}}$</td><td>OUT</td><td>Output terminal for System Code.</td></tr>
<tr><td>19</td><td>R43/AN7</td><td>SYS IN</td><td>IN</td><td>Input terminal for System Code.</td></tr>
<tr><td>20</td><td>AVcc</td><td>AVcc</td><td>-----</td><td>Analog reference voltage for A/D conversion.</td></tr>
<tr><td>21</td><td>Vcc</td><td>+5V</td><td>-----</td><td>Power(+5V) terminal .</td></tr>
<tr><td>22</td><td>D0/INTO</td><td>$\overline{\text{POFF}}$</td><td>IN</td><td>Input terminal for Detecting Power suspension.
However, "L" 100μS or under shall be ignored.</td></tr>
<tr><td>23</td><td>D1/INT1</td><td>$\overline{\text{REM IN}}$</td><td>IN</td><td>Remote control signal input terminal</td></tr>
<tr><td>24</td><td>D2/EVENB</td><td>RELAY</td><td>OUT</td><td>Output terminal for controlling relay. "H" when ON.</td></tr>
<tr><td>25</td><td>D3/BUZZ</td><td>PLAYER</td><td>OUT</td><td>Output terminal for Player control.
H" will be output for 200mS if input PLAY/REJECT code for Remote control and set Input selector for PHONO.</td></tr>
<tr><td>26</td><td>D4/STOPC</td><td rowspan="7">------</td><td rowspan="7">-----</td><td rowspan="7">Not used</td></tr>
<tr><td>27</td><td>D5</td></tr>
<tr><td>28</td><td>D6</td></tr>
<tr><td>29</td><td>D7</td></tr>
<tr><td>30</td><td>D8</td></tr>
<tr><td>31</td><td>R80</td></tr>
<tr><td>32</td><td>R81</td></tr>
<tr><td>33</td><td>R81</td><td>VOL DOWN</td><td rowspan="2">OUT</td><td rowspan="2">UP / DOWN output terminal for Volume. Active "H".
<table>
<tr><th>OPERATION</th><th>VOL UP</th><th>VOL DOWN</th><th></th></tr>
<tr><td>STOP</td><td>H</td><td>H</td><td rowspan="3">POWER ON</td></tr>
<tr><td>VOL UP</td><td>H</td><td>L</td></tr>
<tr><td>VOL DOWN</td><td>L</td><td>H</td></tr>
<tr><td>POWER OFF</td><td>L</td><td>L</td><td></td></tr>
</table>
</td></tr>
<tr><td>34</td><td>R83</td><td>VOL UP</td></tr>
<tr><td>35</td><td>R10</td><td>PHONO</td><td rowspan="6">OUT</td><td rowspan="6">Output terminal for Input selector LED. Active "H".</td></tr>
<tr><td>36</td><td>R11</td><td>TUNER</td></tr>
<tr><td>37</td><td>R12</td><td>CD</td></tr>
<tr><td>38</td><td>R13</td><td>LINE</td></tr>
<tr><td>39</td><td>R20</td><td>TAPE-1</td></tr>
<tr><td>40</td><td>R21</td><td>TAPE-2</td></tr>
<tr><td>41</td><td>R22</td><td>------</td><td>-----</td><td>Not used</td></tr>
<tr><td>42</td><td>R23</td><td>MUTING</td><td>OUT</td><td>Output terminal for Audio muting LED, Remote control</td></tr>
</table>

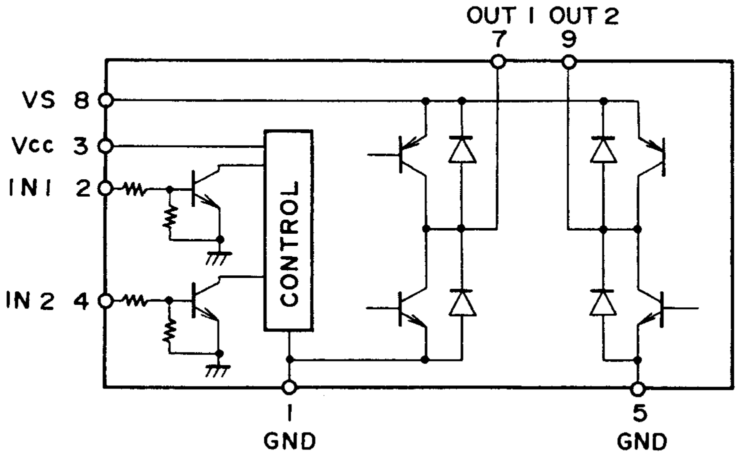
TA7291S (Volume Moter Drive)


Vcc
Vref
2
8
6
Vs
REG
OUT 1
7
M
3
OUT 2
PROTECTOR
9
1
5
GND
IN 1
IN 2

INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW: Counter clockwise direction
CW: Clockwise direction

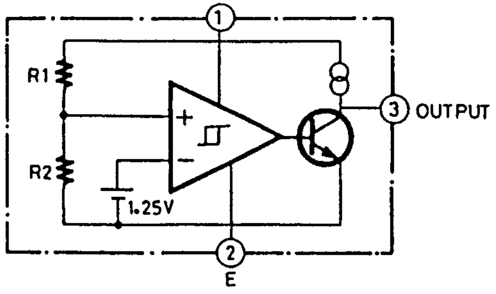
LB1631 (Motor Drive)


OUT 1
7
OUT 2
9
VS 8
Vcc 3
IN 1 2
IN 2 4
CONTROL
1
GND
5
GND

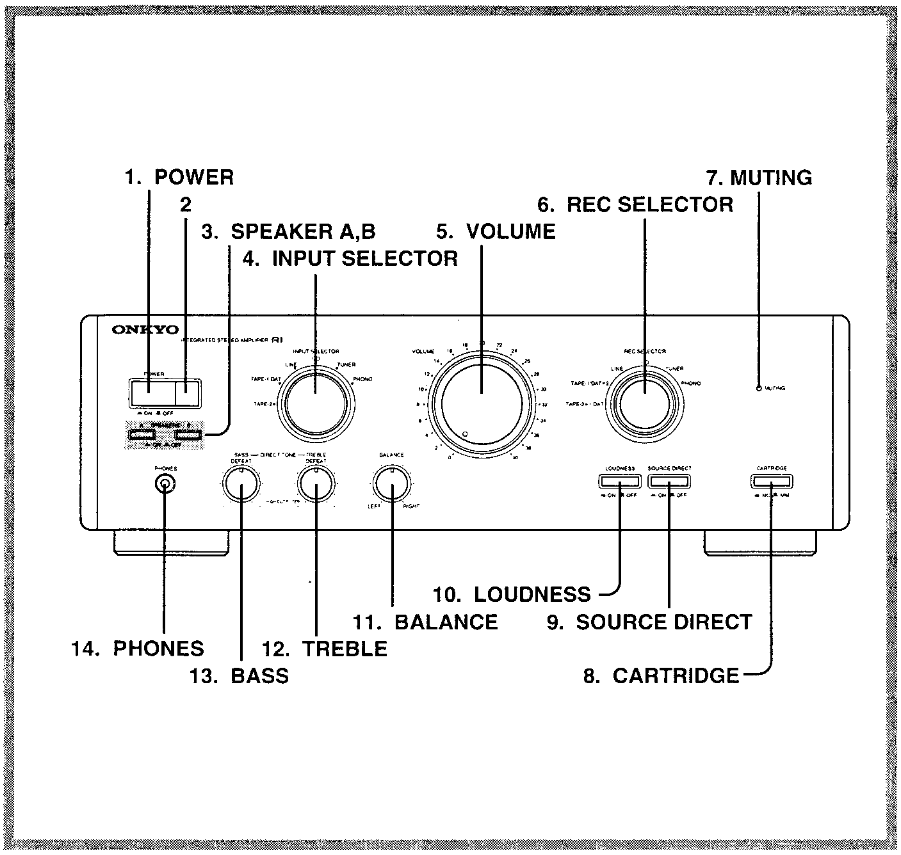
Tauth Table

IN 1	IN 2	OUT 1	OUT 2	モード
H	L	H	L	NORMAL
L	H	L	H	REVERSE
H	H	L	L	BRAKE
L	L	OFF	OFF	WAIT

M51943BS (System Reset)


Vcc
1
R1
R2
+
−
1.25V
3
OUTPUT
2
E

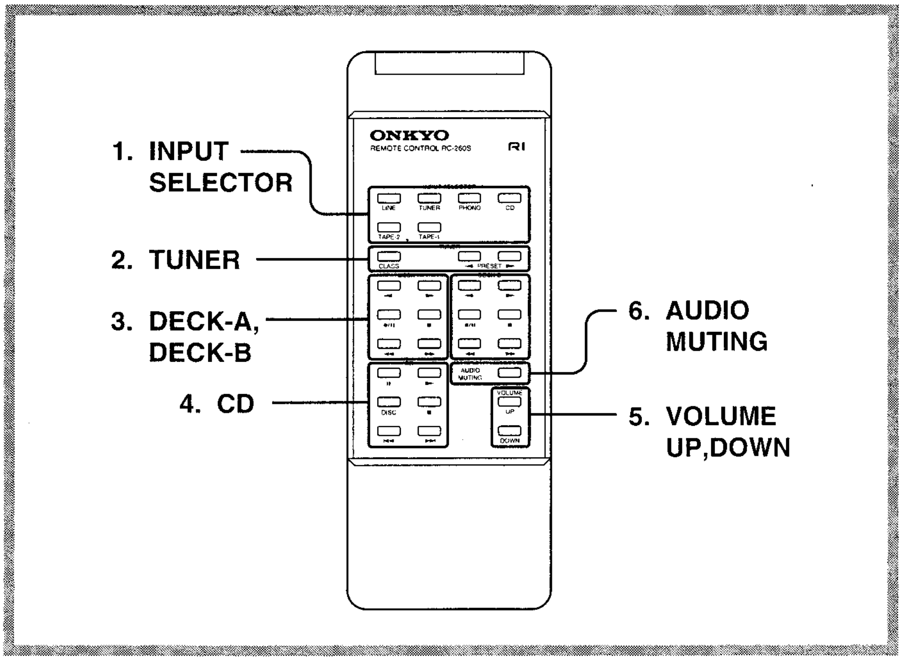
FRONT PANEL


1. POWER
2
3. SPEAKER A,B
4. INPUT SELECTOR
5. VOLUME
6. REC SELECTOR
7. MUTING
ONKYO
10. LOUDNESS
11. BALANCE
9. SOURCE DIRECT
14. PHONES
12. TREBLE
13. BASS
8. CARTRIDGE

Front panel

1. **Power button**
2. **Remote control sensor**
3. **Speaker selector buttons**
4. **Input selector knob and indicator**
5. **Volume control knob**
6. **Recording selector knob**
7. **Muting indicator**
8. **Cartridge selector button**
9. **Source Direct button**
10. **Loudness button**
11. **Balance control knob**
12. **Treble control knob**
13. **Bass control knob**
14. **Headphone jack**

REMOTE CONTROL


ONKYO
REMOTE CONTROL RC-260S
1. INPUT SELECTOR
2. TUNER
3. DECK-A, DECK-B
4. CD
6. AUDIO MUTING
5. VOLUME UP,DOWN

Remote control

1. **Input selector buttons**
2. **Tuner operation buttons**
   - CLASS : Class selector button
   - PRESET : Preset memory down/ up
3. **Tape operation buttons**
   - ◄ : Reverse play button
   - ► : Forward play button
   - ◄◄ : Fast rewind button
   - ►► : Fast forward button
   - ■ : Stop button
   - ●/❚❚ : Record/pause button
4. **CD operation buttons**
   - ❚❚ : Pause button
   - ► : Play button
   - DISC : Disc button for CD changer
   - ⏮ : Down button
   - ⏭ : Up button
5. **Volume control buttons**
6. **Audio muting button**

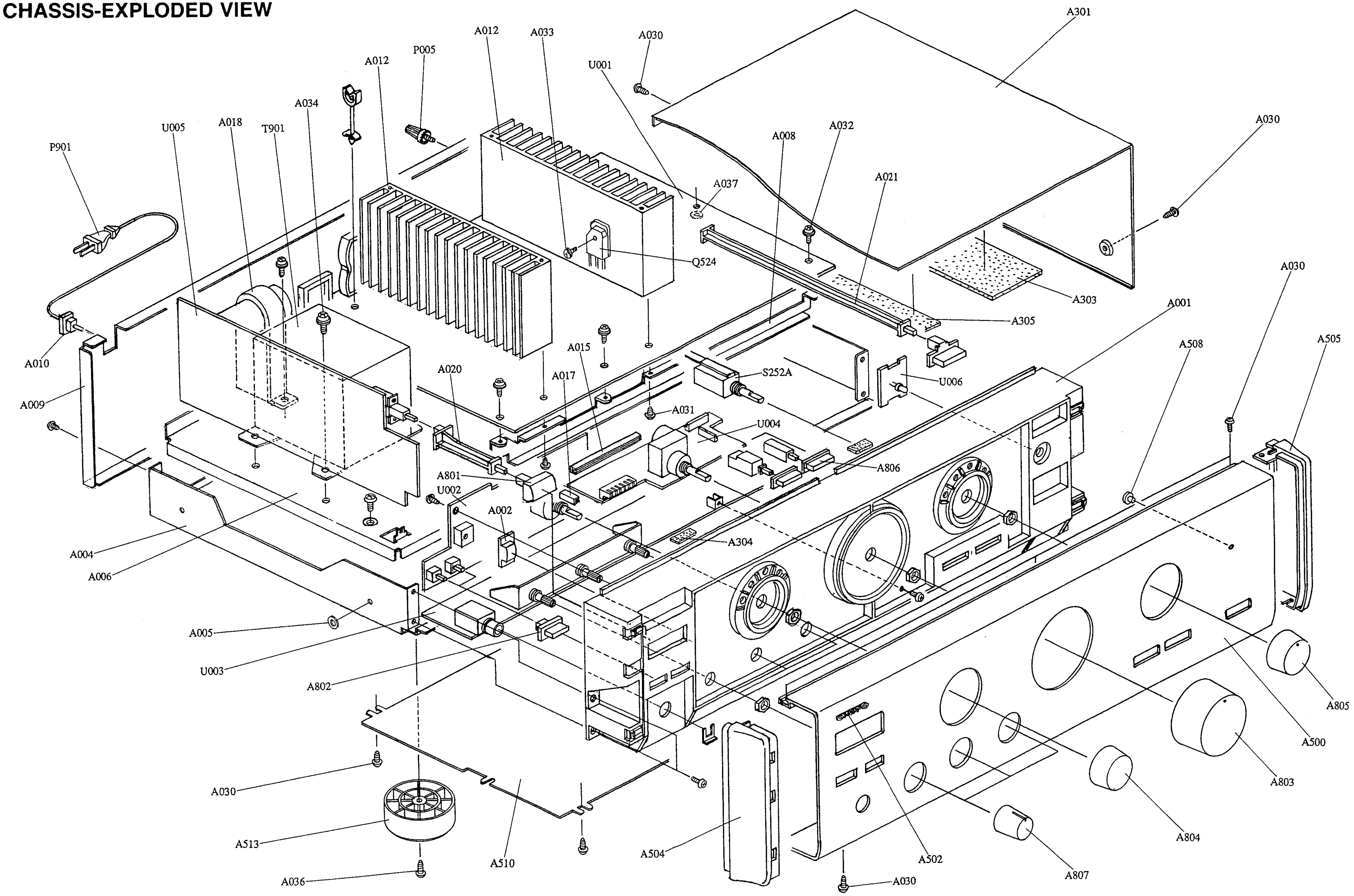
CHASSIS-EXPLODED VIEW – PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
A001	27110785A	FRONT BRACKET
A002	28191593-1	CLEAR PLATE (RE)
A004	27100274	CHASSIS
A005	27270375	t0.2×ϕ3.8×ϕ9, SPACER
A006	27130723	BRACKET (PT)
A008	27130724	BRACKET (C)
A009	27121792A	REAR PANEL [P]
A009	27121794A	REAR PANEL [W]
A010	27300750	#2271, CORD BUSHING
A012	27160328	HEAT SINK
A015	28170039	CE-016, BUSHING
A017	28170038	BUSHING
A018	27190934A	HOLDER (CH)
A020	27273155	JOINT (POW)
A021	27273154A	JOINT (DIR)
A030	834430088	3TTS+8B(BC), SCREW
A031	834430108	3TTS+10B(BC), SCREW
A032	831130088	3TTW+8B, SCREW
A033	801433	3SMS8W.SW+14B(BC), SCREW
A034	830440089	4TTC+8C(BC), SCREW
A036	831430088	3TTW+8B(BC), SCREW
A037	27270332	t1.0×ϕ12×ϕ4, SPEACER
A301	28184553A	COVER
A303	28140898	t1.5×70×140, CUSHION
A304	28141288	3MS5-5832, CUSHION
A305	28140782	t1.5×25×170, CUSHION
A500	1A457121	FRONT PANEL ASS'Y
(A502)	28135199Y	BADGE
(A503)	8910301	CS-3(SUS), CS RING
(A504)	28125255A	END CAP (L)
(A505)	28125256A	END CAP (R)
(A506)	28198798	FACET(SEL)
(A508)	28198778	FACET
A510	28153118	BOTTOM BOARD
A513	27175251-1	LEG ASS'Y
A801	28324140	KNOB (POW)
A802	28324882	KNOB (SP)
A803	28324883	KNOB (VOL)
A804	28324884	KNOB (SEL)
A805	28324885	KNOB (REC)
A806	28324886	KNOB (D)
A807	28324887	KNOB (TONE)
S252A	25030369A	NRSF-106-20BU, ROTARY SWITCH
Q521,Q522	2201703	2SC3855-O OR
	2201704	2SC3855-Y OR
	2201706	2SC3855-P, TRANSISTOR
Q523,Q524	2201693	2SA1491-O OR
	2201694	2SA1491-Y OR
	2201696	2SA1491-P, TRANSISTOR
⚠ T901	2300958A	NPT-1187P, POWER TRANSFORMER [P]
⚠ T901	2300959A	NPT-1187DG, POWER TRANSFORMER [W]
⚠ P901	253193HIT	AS-CEE, AC CORD [P]
⚠ F901	252152	5A-TSC, FUSE [W]
⚠ F902	252075	2.5A-SE-EAK OR
	252075CC	2.5A-SE-EAK, FUSE [P,W]
P005	25060044	GROUND TERMINAL
U001	1A457538-1A	NAAF-4838-1A, MAIN CIRCUIT PC BOARD ASS'Y [P,W]
U002	1A457539-1	NADG-4839-1, MICROPROCESSOR PC BOARD ASS'Y
U003	1A457540-1	NASW-4840-1, TONE CONTROL CIRCUIT PC BOARD ASS'Y
U004	1A457541-1	NAETC-4841-1, VOLUME CONTROL CIRCUIT PC BOARD ASS'Y
U005	1A457542-1A	NAPS-4842-1A, POWER SUPPLY CIRCUIT PC BOARD ASS'Y [P]
U005	1A457542-1B	NAPS-4842-1B, POWER SUPPLY CIRCUIT PC BOARD ASS'Y [W]
U006	1A457543-1	NAETC-4843-1, MUTING INDICATOR PC BOARD ASS'Y
U007	1A457544-1	NASW-4844-1, VOLTAGE SELECTOR SWITCH PC BOARD ASS'Y [W]

NOTE: [P] : 230V MODEL ONLY
[W] : WORLD WIDE MODEL ONLY

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CHASSIS-EXPLODED VIEW


A301
A012
A033
A030
P005
A012
U001
A034
U005
A018
T901
P901
A008
A032
A030
A037
A021
Q524
A303
A305
A030
A001
A010
A015
A017
A020
S252A
U006
A508
A505
A009
A031
U004
A806
A801
U002
A002
A304
A004
A006
A005
U003
A802
A805
A500
A030
A803
A513
A510
A504
A502
A804
A807
A036
A030

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAF-4838-1A)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	ICs	
Q105	22240191	NJM4565D-D
	Transistors	
Q101-Q104	2211782 or	2SA991-F
	2211783	2SA991-E
Q501,Q503	2213677 or	2SC3067-G or
	2213678	2SC3067-H
Q505-Q508	2211455 or	2SA1015-GR or
	2214905	2PA1015-GR
Q509,Q510	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q511,Q512	2211255 or	2SC1815-GR or
	2214915	2PC1815-GR
Q513,Q514	2211353 or	2SA949-O or
	2211354	2SA949-Y
Q515,Q516	2211633 or	2SC2229-O or
	2211634	2SC2229-Y
Q517,Q518	2212653 or	2SC3421-O or
	2212654	2SC3421-Y
Q519,Q520	2212643 or	2SA1358-O or
	2212644	2SA1358-Y
Q525,Q526	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q527	2211792 or	2SA992-F or
	2211793	2SA992-E
Q528,Q529	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q531,Q532	2211183 or	2SC1740-R or
	2214915	2PC1815-GR
Q601-Q603	2213650	DTD113ZS
Q903	2211455	2SA1015-GR
Q904	2211255	2SC1815-GR
Q905,Q906	2211945	2SK246-GR
	Diodes	
D101-D104	223163 or	1SS133 or
D501-D504	223205 or	1SS270A or
	223222	WG713A
D551	224450512	MTZ5.1B, Zener
D601-D603	223163 or	1SS133 or
	223205 or	1SS270A or
	223222	WG713A
D911,D912	224451503	MTZ15C, Zener
	Coils	
L101,L102	231133	NCH-1188 [P,W]
L201,L202	230905	BL02RN1-R62
L501,L502	231209SY	S-0.4A
	Capacitors	
C101,C102	374721015	100 pF, 50V, Film(TF) [P,W]
C103,C104	374722224	2200 pF, 50V, Film(TF) [P,W]
C105,C106	393380477	4.7μF, 50V, Elect.(VX)
C107,C108	374722215	220 pF, 50V, Film(TF)
C109,C110	374723315	330 pF, 50V, Film(TF)
C111,C112	374728224	8200 pF, 50V, Film(TF)
C113,C114	393324717	470μF, 6.3V, Elect.(VX)
C115,C116	374721134	0.011μF, 50V, Film(TF)
C117,C118	371123034	0.03μF, 50V, Mylar
C119,C120	393380477	4.7μF, 50V, Elect.(VX)
C121,C122	374721224	1200 pF, 50V, Film(TF)
C201-C206 C213,C214 C215,C216	374721015	100 pF, 50V, Film(TF) [P,W]
C501,C502	393380477	4.7μF, 50V, Elect.(VX)
C503,C504	374721015	100 pF, 50V, Film(TF)
C505,C506	374721015	100 pF, 50V, Film(TF) [P,W]
C507,C508	374721024	1000 pF, 50V, Film(TF)
C509,C510	393342217	220μF, 16V, Elect.(VX)
C511,C512	393381017	100μF, 50V, Elect.(VX)
C517-C520	374722234	0.022μF, 50V, Film(TF)
C525,C526	374724734	0.047μF, 50V, Film(TF)
C529-C532	393381017	100μF, 50V, Elect.(VX)
C533,C534	374724734	0.047μF, 50V, Film(TF)
C541-C544	374721024	1000 pF, 50V, Film(TF) [P,W]
C554	393380477	4.7μF, 50V, Elect.(VX)
C555	393322217	220μF, 6.3V, Elect.(VX)
C926,C927	393341007	10μF, 16V, Elect.(VX)
C920,C921	393342217	220μF, 16V, Elect.(VX)
C918,C919	393351027	1000μF, 25V, Elect.(VX)
	Resistors	
R527,R528	443522704	27Ω,1/2W,Metal oxide film
R529,R530	443529104	91Ω,1/2W,Metal oxide film
R531,R532	5210261	N06HR5KBC,Semi-fixed
R535,R536	443522714	270Ω,1/2W,Metal oxide film
R539-R542	4000076	0.22Ω,5W,Metal plate
R543-R546	453530224	2.2Ω,1/2W,Metal
R547,R548	453530824	8.2Ω,1/2W,Metal
R549,R550	453530564	5.6Ω,1/2W,Metal
R553-R556	443521014	100Ω, 1/2W, Metal oxide film
R571,R572	443623914	390Ω, 1W, Metal oxide film
R601,R602	443627514	750Ω,1W,Metal oxide film
R603	443522724	2.7kΩ,1/2W,Metal oxide film
	Switches	
S101	25035631	NPS-142-L587
S201	25030370	NRS-3311-BA, Rotary
S252	25065079	NSS-4643, Slide
	Relays	
RL601,RL602	25065339	NRL-2P5A-DC24V-46
RL603	25065470	NRL-2P1A-DC24V-079
	Jumper sockets	
JL201b,JL571b JL502b,JL703b	25050267	NSCT-3P95
JL501b	25050271	NSCT-7P99
	Plugs	
P503,P504	25055038	NPLG-2P29
P512a	25055167	NPLG-4P151
	Pin jacks	
P101	25045401	NPJ-2PDBL226
P201	25045403	NPJ-2PDBL228
P203,P251 P252	25045354	NPJ-4PDBL200
	Jack	
P801	25045330	NPJ-2PDBL184
	Terminals	
P501	25060192	NTM-4PDMN114
P502	25060193	NTM-4PDMN115
	Plate	
	27141059	Ground
	Holder	
JL701a	25051113	NSCT-9P900, Wire holder
	27190540-1	Clamp

MICROPROCESSOR PC BOARD (NADG-4839-1)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Remote control sensor	
Q751	24130007	GP1U571X
	ICs	
Q351	22240239	TA7291S
Q701	22240731	HD40431A12S
Q704	222951	M51943BS
Q711	22240358	LB1638
	Transistors	
Q702,Q703	2213510	DTA114ES
	Diodes	
D351	22380046 or	AM01Z or
	22380035	GP104003E
D703	223163 or	1SS133 or
	223205 or	1SS270A or
	223222	WG713A
D704	224450562	MTZ5.6B, Zener
D711-D716	225291D	SEL4910D-D, LED
	Resonator	
X701	3010150	CST4.00MGW
	Coils	
L701,L702 L703,L704	230905	BL02RN1-R62
	Capacitors	
C702	375524744	0.47μ, 50V, Film(MMT)
C707	393380107	1μF, 50V, Elect.(VX)
C708	393341007	10μF, 16V, Elect.(VX)
	Switches	
S601,S602	25035653	NPS-122-L605
S701	25030359	NRSF-112-20RM, Rotary
	Plug	
P701a	25055660	NPLG-13P616
	Wire holder	
JL702a	25051109	NSCT-5P896
JL706a	25051107	NSCT-3P894

TONE CONTROL CIRCUIT PC BOARD (NASW-4840-1)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Capacitors	
C301-C304	374721634	0.016μF, 50V, Film(TF)
C305,C306	374721824	1800 pF, 50V, Film(TF)
C307,C308	374728234	0.082μF, 50V, Film(TF)
C311,C312	374722724	2700 pF, 50V, Film(TF)
	Resistors	
R301	5148107A	N16RGMC250KMN25, Variable
R302	5142002	N16RGM11C100K25, Variable
R303	5144011	N16RQM11C70K88K25, Variable
	Switches	
S301	25035407	NPS-122-L371
S302	25035654A	NPS-162-L606
	Jack	
P571	25045164	HLJ4317-01-3020
	Wire holder	
JL201a,JL571a	25051107	NSCT-3P894
JL301a	25051114	NSCT-10P901
JL501a	25051111	NSCT-7P898
	Plat	
	27150364	Shield

VOLUME CONTROL CIRCUIT PC BOARD (NAETC-4841-1)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Transistors	
Q353,Q354	2213631 or	RN1241-A or
	2213632	RN1241-B
	Coils	
L351,L352	230905	BL02RN1-R62
	Resistors	
R351(R352)	5104329A	N16RGM50KBT25F, Variable
	Socket	
P701b	25051047	NSCT-13P834
	Jumper socket	
JL301b	25050274	NSCT-10P102
JL701b	25050273	NSCT-9P101

POWER SUPPLY CIRCUIT PC BOARD (NAPS-4842-1A, -1B)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	ICs	
Q901,Q902	222780055NEC	78M05HF
	Transistors	
Q911	2201945	2SD1763-E
Q912	2201935	2SB1186-E
	Diodes	
D901	22380038	RBV602
D902,D903	223208	6A2
D904-D907	22380046 or	AM01Z or
	22380035	GP104003E
D913,D914	224452003	MTZ220C, Zener

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Coil	
L901	231069A	NCH-1119
	Capacitors	
⚠ C901	3500065A	0.01 μF, AC400V/125V, Film(IS)
⚠ C902	3500163	WY2472MCMCF0K, Film(IS)
C903-C905	374503345	0.33 μF, 125V, Film(ME)
C906,C907	3504261	10000 μF, 50V, Elect.
C908	374721034	0.01 μF, 50V, Film(TF)
C909	393342227	2200 μF, 16V, Elect.(VX)
C914	374721034	0.01 μF, 50V, Film(TF)
C915,C916	393382217	220 μF, 50V, Elect.(VX)
C917,C918	393361007	10 μF, 35V, Elect.(VX)
	Resistors	
R901,R902	353530224	2.2Ω, 1/2W, Metal
R903	443521024	1 kΩ, 1/2W, Metal oxide film
R911,R912	443623924	3.9 kΩ, 1W, Metal oxide film
R913,R914	443621024	1 kΩ, 1W, Metal oxide film
	Switches	
⚠ S901	25035550	NPS-111-L51P
	Fuse holders	
⚠ F901a	25050065	YSH403T
⚠ F902a	25050065	YSH403T [P,W]
	Plug	
⚠ P905	25055675	NPLG-2P631
	Wier holder	
JL502a,JL703a	25051107	NSCT-3P994
	Jumper socket	
JL702b	25050269	NSCT-5P97
	Socket ass'y	
P512	2009990301A	NSAS-4P0435
	Bus bar	
	27301781	

MUTING INDICATOR PC BOARD (NAETC-4843-1)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Diode	
D751	225291D	SEL4910D-D, LED
	Wire holder	
JL706	25051107	NSCT-3P894

VOLTAGE SELECTOR SWITCH PC BOARD (NASW-4844-1)

CIRCUIT. NO.	PART NO.	DESCRIPTION
	Switch	
⚠ S902	25065437	NSS-22157P, Slide [W]

NOTE :
[P]: 230V Model only
[W]: World wide model only

NOTE:
THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PARTS LIST OF PACKING

REF.NO.	PART NO.	DESCRIPTION
A851	29052671	CARTON BOX
A853	29091638	PAD(L)
A854	29091639	PAD(R)
A857	261504	PAPER TAPE
A866	29100033A	POLY-VINYL BAG
A867	282311 or	STAPLE or
	282301	STAPLE
A868	29110071 or	PP TAPE or
	29110077	PP TAPE

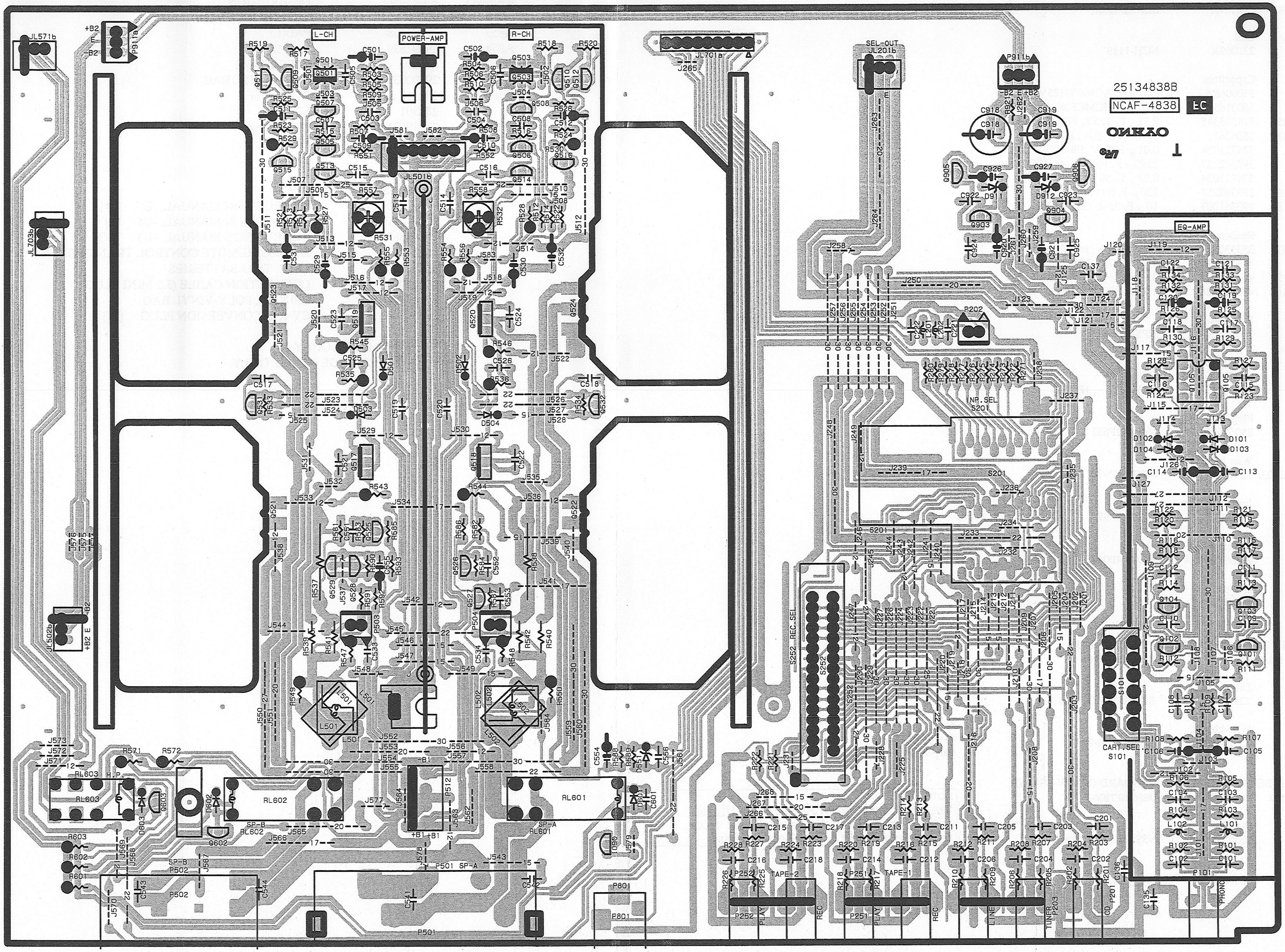
<ACCESSARY BAG ASS'Y>

PART NO.	DESCRIPTION
29341880	INSTRUCTION MANUAL, -E [D]
29341881	INSTRUCTION MANUAL, -U6 [P]
29341883	INSTRUCTION MANUAL, -U3 [W]
24140260	RC-260S, REMOTE CONTROL TRANSMITTER
3010054	UM-3, TWO BATTERIES
2010200	CONNECTION CABLE (3.5 MINI PLUG)
29100097	320×250, POLY-VINYL BAG
25055040	CV-K-2, CONVERSION PLUG [W]

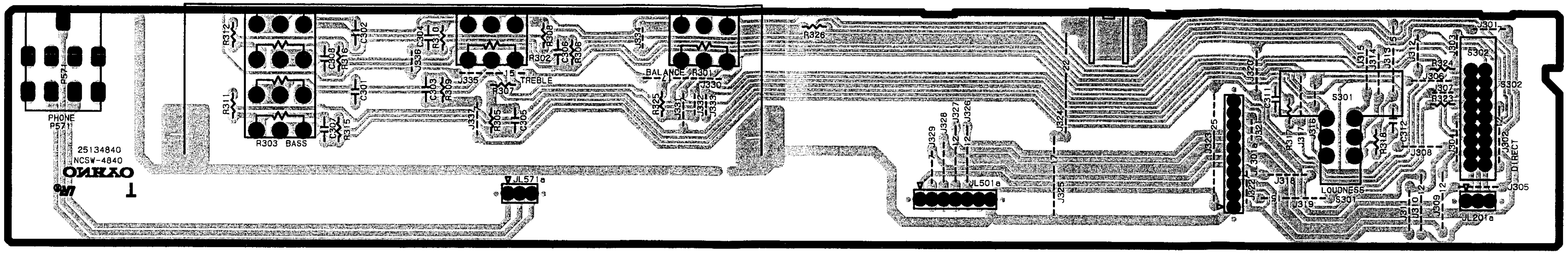
NOTE: [P] : 230V MODEL ONLY
[W] : WORLD WIDE MODEL ONLY

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

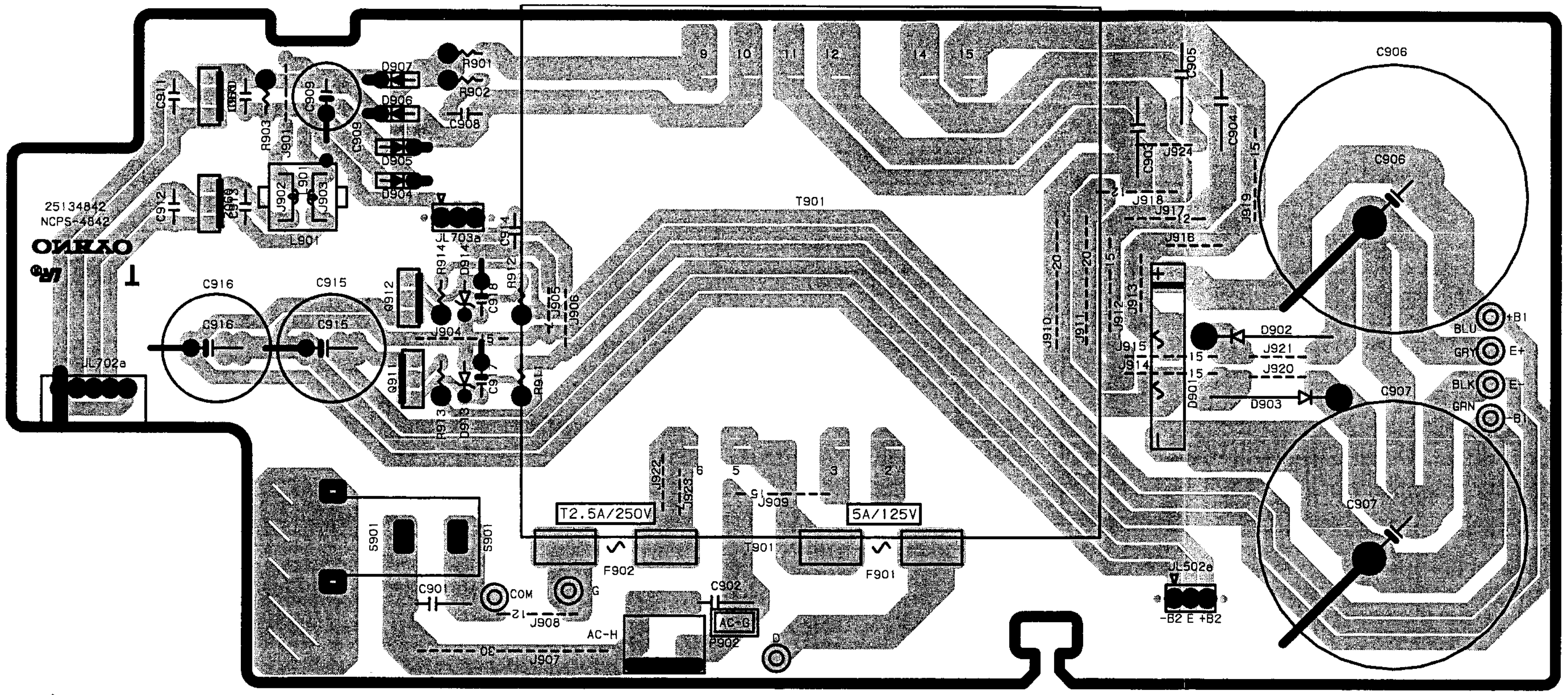
NAAF-4838 Main circuit


L-CH
POWER-AMP
R-CH
SEL-OUT
JL201b
JL701a
P911b
25134838B
NCAF-4838
EQ-AMP
INP.SEL
S201
REC.SEL
S252
CART.SEL
S101
RL601
RL602
RL603
SP-A
SP-B
P501
P502
P801
P252
P251
P203
P201
P101
TAPE-2
TAPE-1
PLAY
REC
LINE
TUNER
CD
PHONO
+B2
-B2
+B1
JL571b
JL703b
JL502b
JL501b

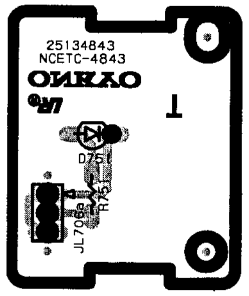
NASW-4840 Tone control circuit


PHONE
P571
25134840
NCSW-4840
ONKYO
R303 BASS
TREBLE
BALANCE
R326
S302
S301
LOUDNESS
DIRECT
JL571a
JL501a
JL201a

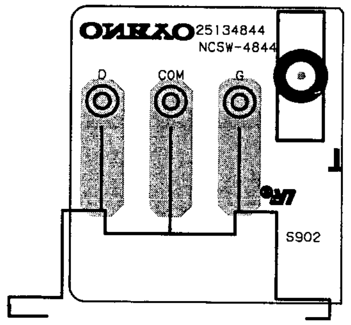
NAPS-4842 Power supply circuit


25134842
NCPS-4842
ONKYO
T901
C906
C907
C916
C915
D902
D903
D901
D904
D905
D906
D907
L901
JL702a
JL703a
JL502a
T2.5A/250V
F902
5A/125V
F901
S901
C901
C902
COM
AC-H
AC-G
P902
BLU
GRY
BLK
GRN
+B1
E+
E-
-B1
-B2 E +B2

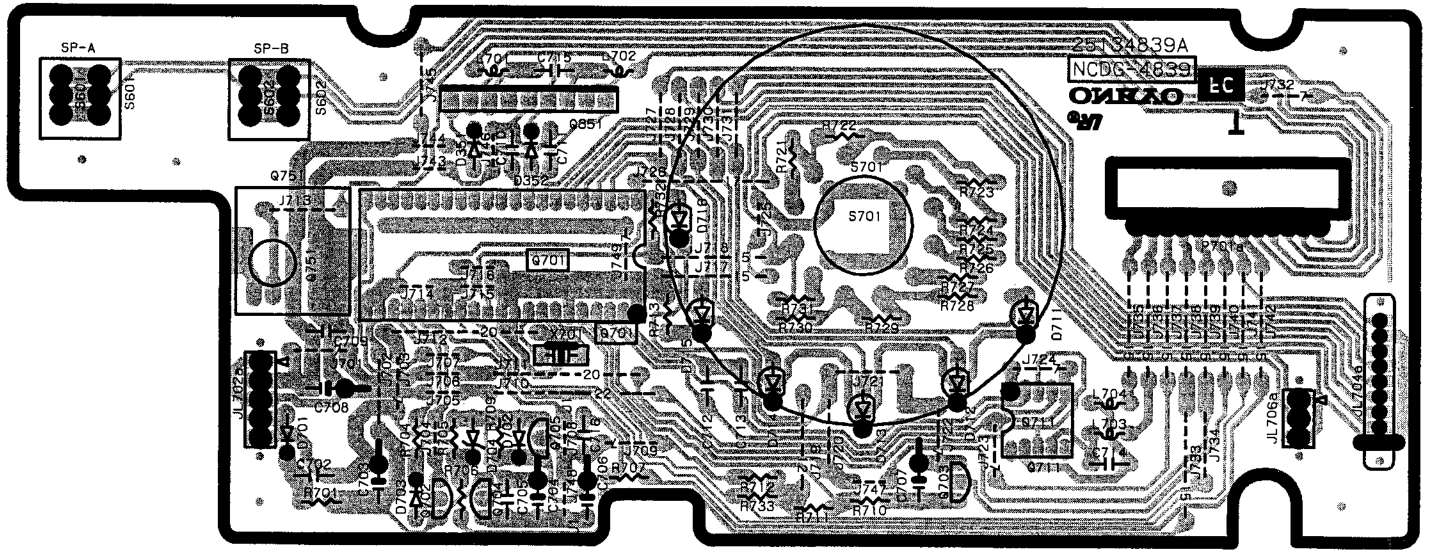
NAETC-4843 Muting Ind.


25134843
NCETC-4843
ONKYO
D751
R751
JL706b

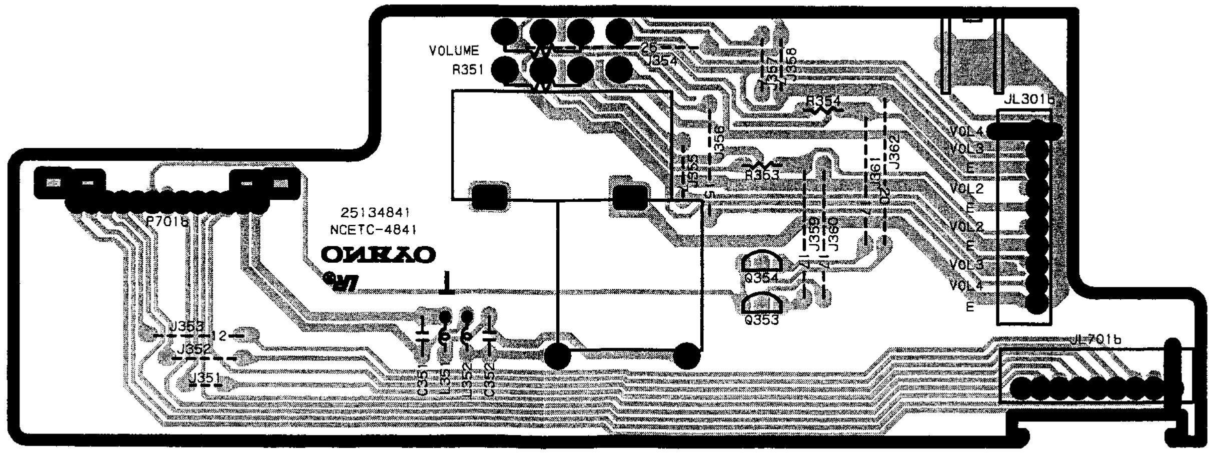
NASW-4844 Voltage switch


ONKYO
25134844
NCSW-4844
D
COM
G
S902

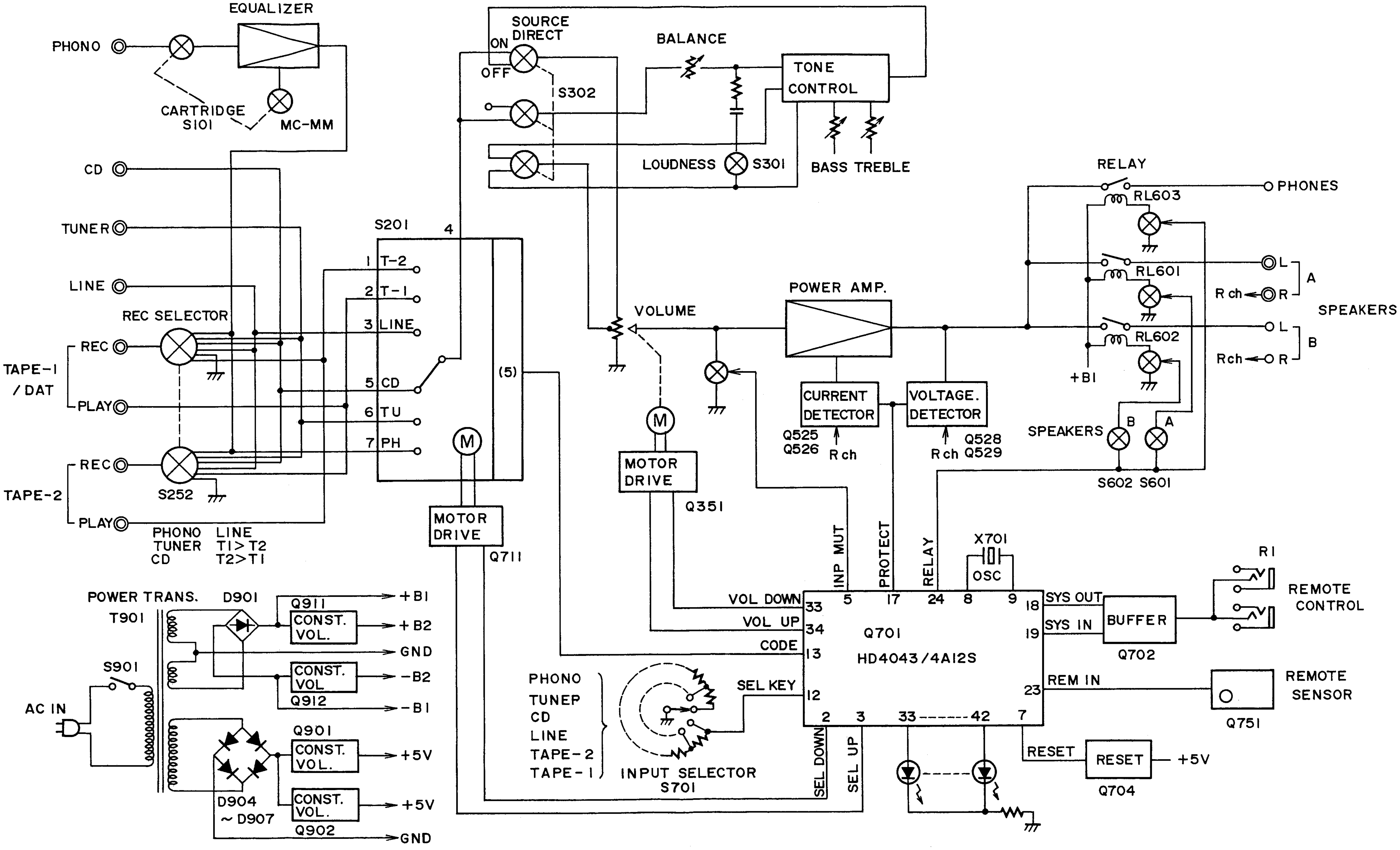
NADG-4839 Microprocessor circuit


SP-A
SP-B
S601
S602
25134839A
NCDG-4839
ONKYO
Q751
Q701
S701
Q711
JL702b
JL706a
JL704b

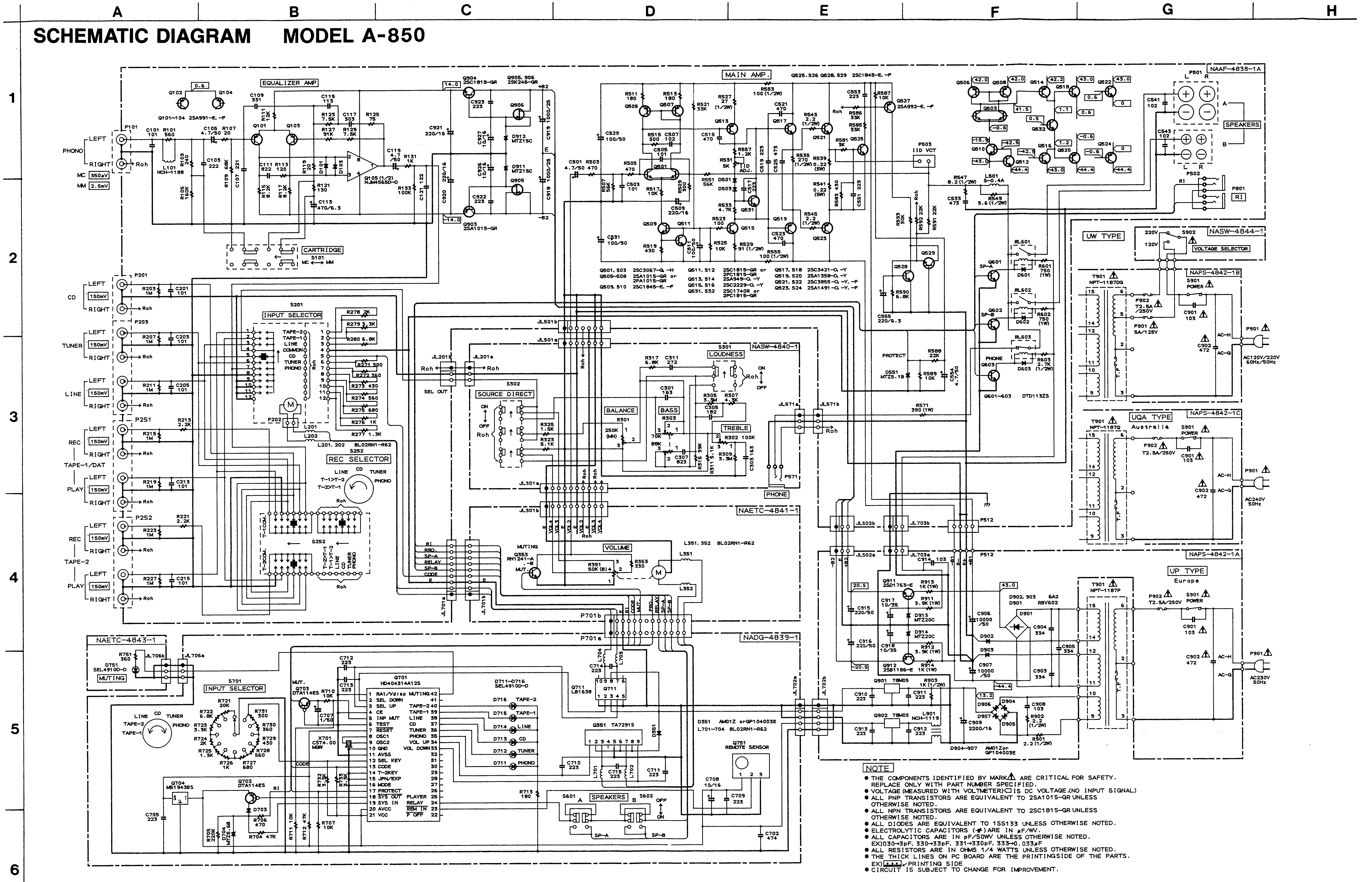
NAETC-4841 Volume control circuit


VOLUME
R351
25134841
NCETC-4841
ONKYO
P701b
JL301b
JL701b
Q353
Q354
VOL4
VOL3
E
VOL2
E
VOL1
VOL3
VOL4
E

BLOCK DIAGRAM


EQUALIZER
PHONO
CARTRIDGE
S101
MC-MM
CD
TUNER
LINE
REC SELECTOR
TAPE-1
/ DAT
REC
PLAY
TAPE-2
REC
PLAY
S252
PHONO
TUNER
CD
LINE
T1>T2
T2>T1
S201
4
1 T-2
2 T-1
3 LINE
5 CD
6 TU
7 PH
(5)
M
MOTOR
DRIVE
Q711
SOURCE
DIRECT
ON
OFF
S302
BALANCE
TONE
CONTROL
LOUDNESS
S301
BASS TREBLE
VOLUME
M
MOTOR
DRIVE
Q351
POWER AMP.
CURRENT
DETECTOR
Q525
Q526
R ch
VOLTAGE.
DETECTOR
Q528
Q529
R ch
RELAY
PHONES
RL603
RL601
RL602
L
R
R ch
A
SPEAKERS
L
R
Rch
B
+B1
SPEAKERS
B
A
S602 S601
INP MUT
PROTECT
RELAY
X701
OSC
VOL DOWN
VOL UP
CODE
SEL KEY
33
34
13
12
5
17
24
8
9
18
19
23
2
3
33-------42
7
Q701
HD4043/4A12S
SYS OUT
SYS IN
BUFFER
Q702
R1
REMOTE
CONTROL
REM IN
REMOTE
SENSOR
Q751
RESET
RESET
+5V
Q704
SEL DOWN
SEL UP
PHONO
TUNEP
CD
LINE
TAPE-2
TAPE-1
INPUT SELECTOR
S701
POWER TRANS.
T901
D901
Q911
CONST.
VOL.
+B1
+B2
GND
CONST.
VOL
-B2
Q912
-B1
S901
AC IN
Q901
CONST.
VOL.
+5V
D904
~D907
CONST.
VOL.
+5V
Q902
GND

SCHEMATIC DIAGRAM MODEL A-850


A
B
C
D
E
F
G
H
1
2
3
4
5
6
EQUALIZER AMP
Q101~104 2SA991-E, -F
Q105 (1/2) NJM4565D-D
Q904 2SC1815-GR
Q905, 906 2SK246-GR
Q903 2SA1015-GR
D912 MTZ15C
D911 MTZ15C
CARTRIDGE
S101 MC ←→ MM
PHONO
LEFT
RIGHT
MC 350µV
MM 2.5mV
L101 NCH-1188
P101
MAIN AMP.
Q525, 526 Q528, 529 2SC1845-E, -F
Q527 2SA992-E, -F
Q501, 503 2SC3067-O, -H
Q505~508 2SA1015-GR or 2PA1015-GR
Q509, 510 2SC1845-E, -F
Q511, 512 2SC1815-GR or 2PC1815-GR
Q513, 514 2SA949-O, -Y
Q515, 516 2SC2229-O, -Y
Q531, 532 2SC1740R or 2PC1815-GR
Q517, 518 2SC3421-O, -Y
Q519, 520 2SA1358-O, -Y
Q521, 522 2SC3855-O, -Y, -P
Q523, 524 2SA1491-O, -Y, -P
NAAF-4838-1A
SPEAKERS
P501
P502
P503 IID VCT
P801
RI
PROTECT
D551 MTZ5.1B
RL601
RL602
RL603
SP-A
SP-B
PHONE
Q601~603 DTD113ZS
NASW-4844-1
VOLTAGE SELECTOR
220V
120V
S902
UW TYPE
NAPS-4842-1B
T901 NPT-1187DQ
S901 POWER
F902 T2.5A/250V
F901 5A/125V
P901
AC120V/220V 60Hz/50Hz
UQA TYPE
Australia
NAPS-4842-1C
T901 NPT-1187Q
AC240V 50Hz
UP TYPE
Europe
NAPS-4842-1A
T901 NPT-1187P
AC230V 50Hz
CD
TUNER
LINE
REC
PLAY
TAPE-1/DAT
TAPE-2
150mV
P201
P203
P251
P252
S201
INPUT SELECTOR
P202
L201, 202 BL02RN1-R62
S252
REC SELECTOR
JL201b
JL201a
SEL OUT
S302
SOURCE DIRECT
NASW-4840-1
S301
LOUDNESS
BALANCE
BASS
TREBLE
JL571a
JL571b
P571
PHONE
JL501b
JL501a
JL301a
JL301b
NAETC-4841-1
VOLUME
MUTING
Q353 RN1241-A
L351, 352 BL02RN1-R62
JL701a
JL701b
P701b
P701a
NADG-4839-1
JL502b
JL703b
P512
JL502a
JL703a
Q911 2SD1763-E
Q912 2SB1186-E
D913 MTZ20C
D914 MTZ20C
D902, 903 6A2
D901 RBV602
Q901 78M05
Q902 78M05
L901 NCH-1119
D904~907 AM01Z or GP104003E
NAETC-4843-1
D751 SEL4910D-O
MUTING
JL706b
JL706a
S701
INPUT SELECTOR
Q701 HD404314A12S
Q703 DTA114ES
X701 CST4.00 MGW
D711~0716 SEL4910D-O
Q711 LB1638
Q351 TA7291S
D351 AM01Z or GP104003E
L701~704 BL02RN1-R62
Q751 REMOTE SENSOR
Q704 M51943BS
Q702 DTA114ES
D704 MTZ5.6B
S601
SPEAKERS
S602
JL702a
JL702b

NOTE

- THE COMPONENTS IDENTIFIED BY MARK⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER)▭ IS DC VOLTAGE.(NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (⫨) ARE IN µF/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX)030→3pF、330→33pF、331→330pF、333→0.033µF
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTINGSIDE OF THE PARTS. EX)▭↙PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

ONKYO CORPORATION

PRECAUTIONS

1. Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252152	5A-TSC, Primary fuse (120V/220V models)
F902	252075 or	2.5A-SE-EAK or
	252075CC	2.5A-SE-EAK, Primary fuse (230V,120V/220V models)

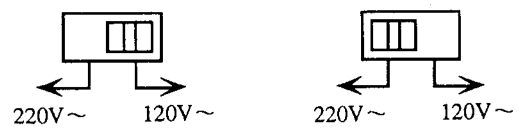
2. Insulation resistance measurement (Only U.S.A. model)

Connect the insulating-resistance tester between the plug of power supply cable and terminal GND on the back panel. Specifications; More than 10 MΩ at 500V.

3. Voltage Selector (Rear Panel)

Worldwide models are equipped with a voltage selector to conform to local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

VOLTAGE SELECTOR



at AC120V at AC220V

Setting the voltage selector

1. Determine the proper for voltage for your area: 220V or 120V.
2. If the preset voltage is not proper for your area, insert a screwdriver into the groove in the switch. Slide the switch all the way to the right (120V) or to the left (220V), which-ever is proper.

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